

Gulfco - Calculation of Sediment Preliminary Screening Values Protective of Human Health (fish ingestion)

Target Risk Level:
 Body Weight (kg):
 Target Hazard Quotient:
 Ingestion Rate (kg/day):
 Exposure Frequency (day/year):
 Exposure Duration (years):
 Averaging Time (years):
 Averaging Time (non-carcinogen) (days):
 Fraction of Organic Carbon in Sediment:
 Fraction of Lipids in Fish & Crab:
 BSAF: biota-sediment accumulation factors, chemical specific (unitless)

1.0E-06
 70
 1
 0.03
 350
 30
 2.6E-04
 (365 days times 70 years)
 1.0E-04
 (365 days times 30 years)
 1.50E-03
 Gulfco Site measurements
 7.00E-02
 EPA Region 6 Guidance on lipids & fish (EPA, 1998)

RBEL for carcinogens (mg/kg): (RL x BW x ATc) / (SFo x IF x EF x ED)
 RBEL for non-carcinogens (mg/kg): (HQ X BW X RFDo X ATc) / (IR X EF X ED)

Compound	b Maximum Site Sediment Concentration (mg/kg)	c Detected Background Sediment Concentration ¹ (mg/kg)	d Chemical Hazard Index for Site Releases	e Sediment Screening Value (mg/kg)	f Cancer Slope Factor Oral (mg/kg-day)	g Reference Dose Oral (mg/kg-day)	h BSAF (unitless)	Is Fish/Crab Analysis Required?	
antimony	8.14E+00	7.33E+00	na-below background on a stat. basis	3.37E+00	4.00E-04	2.90E-01	No - below background		
arsenic	7.02E+00	9.62E+00	na-below background	2.34E-02	1.50E+00	3.00E-04	1.82E-01	No - below background	
beryllium	8.30E-01	1.32E+00	na-below background	2.57E+01	2.00E-03	1.90E-01	No - below background		
chromium	1.44E+01	2.25E+01	na-below background	1.75E+05	1.50E+00	2.10E-02	Na - below background		
copper	1.26E+01	1.66E+01	na-below background	9.76E+01	4.00E-02	1.00E+00	Na - below background		
lead ²	3.23E+01	1.45E+01	60.2	3.41E-01	8.50E-03	4.30E-04	1.96E+00	Yes - concentration exceeds screen & background	
mercury	3.00E-02	0.57E-02	6.5E-02	8.60E-02	8.00E-05	3.00E+00	3.40E-02	No - concentration below screen	
nickel	1.00E+01	2.12E+01	na-below background	1.65E+02	2.00E-02	5.40E-01	Na - below background		
silver	5.40E-01	0	-48.6	1.11E-03	5.00E-03	1.10E-03	Yes - concentration exceeds screen & background		
zinc	1.02E+01	5.41E+01	0.14	6.45E-02	3.00E-01	1.14E-00	No - concentration below screen		
chlorane, gamma	8.30E-04	0	0.00	3.00E-01	5.00E-01	4.25E+01	No - concentration below screen		
4,4 DDE	5.41E-04	0	na-carcinogen	5.01E-06	3.40E-01	7.16E+01	Yes - concentration exceeds screen & background		
4,4 DDT	3.32E-03	5.70E-04	0.07	6.18E-04	3.40E-01	5.00E-04	5.80E-01	Yes - concentration exceeds screen & background	
acenaphthene	7.32E-02	0	0.01	6.35E+00	6.00E-02	4.95E-01	No - concentration below screen		
anthracene	1.07E-01	0	0.00	1.87E+02	3.00E-01	8.40E-02	No - concentration below screen		
benz(a)pyrene	6.34E-01	0	na-carcinogen	2.53E-05	7.30E+00	6.60E-01	Yes - concentration exceeds screen & background		
benz(a)anthracene	5.41E-01	0	na-carcinogen	2.53E-04	7.31E-01	6.60E-01	Yes - concentration exceeds screen & background		
benz(b)fluoranthene	6.11E-01	3.69E-02	na-carcinogen	2.53E-04	7.30E-01	6.60E-01	Yes - concentration exceeds screen & background		
benz(a,h)perylene	5.09E-01	0	0.21	2.38E+00	3.00E-02	6.60E-01	No - concentration below screen		
benz(k)fluoranthene	5.66E-01	0	na-carcinogen	2.53E-03	7.30E-02	6.60E-01	Yes - concentration exceeds screen & background		
chrysene	6.53E-01	0	na-carcinogen	2.53E-02	7.30E-03	6.60E-01	Yes - concentration exceeds screen & background		
dibenz(a,h)anthracene	2.35E-01	0	na-carcinogen	2.53E-05	7.30E+00	6.60E-01	Yes - concentration exceeds screen & background		
fluoranthene	9.08E-01	0	0.29	3.17E+00	4.00E-02	6.60E-01	No - concentration below screen		
fluorene	6.77E-02	0	0.02	4.23E+00	4.00E-02	4.95E-01	No - concentration below screen		
hexachlorobenzene	3.19E-02	0	0.50	1.15E-04	1.60E+00	8.00E-04	6.60E-01	Yes - concentration exceeds screen & background	
inden(1,2,3-cd)phenene	7.70E-01	0	na-carcinogen	2.53E-04	7.30E-01	6.60E-01	Yes - concentration exceeds screen & background		
methyl napthalene, 2-	2.89E-02	0	0.64	4.51E-02	4.00E-03	4.65E+00	No - concentration below screen		
phenanthrene	6.91E-01	0	0.22	3.17E+00	3.00E-02	4.95E-01	No - concentration below screen		
pyrene	1.01E+00	0	0.42	2.38E+00	3.00E-02	6.60E-01	No - concentration below screen		
			Total HQ = 112						

¹ A background sample concentration of 0 indicates that the chemical was not detected

² Lead slope factor and reference dose from "Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities", Final (EPA, 9/2005); used for screening only

* Sediment screening level is calculated from the US FDA Action Level (See 575.100) of 0.3 ppm chlordane in fish (edible portion) instead of RBEL